Table of Contents

2. Compliance and Enforcement

2.1 Overview

Primary responsibility for compliance and enforcement with the Building Energy Efficiency Standards (Standards) rests with the local enforcement agency, typically associated with a city or county government. A building permit must be obtained from the local jurisdiction before the construction of:~~:~~

- a new nonresidential or high-rise residential building,
- an outdoor lighting system,
- ~~or~~ a sign ~~may be constructed;~~
- ~~before constructing~~ an addition,
- or a ~~and before~~ significant alterations (including tenant improvements)

~~may be made to existing buildings or systems.~~ Before a permit is issued, the local jurisdiction examines the building plans and specifications for the proposed building to verify compliance with all applicable codes and standards. Verification of compliance with the Standards is the responsibility of the enforcement agency's plans examiner. This~~,~~ is done by comparing the requirements specified on the Certificate(s) of Compliance with the building plans and specifications for the building~~, is the responsibility of the enforcement agency's plans examiners~~. ~~The enforcement agency's plans examiner must also verify that the building plans and specifications for the building are in compliance with the building, plumbing, electrical, and the mechanical codes, and all other applicable codes and standards adopted by the local enforcement agency.~~

Once the enforcement agency has determined that the proposed building (as represented in the building plans and specifications) complies with all applicable codes and standards, a Building Permit may be issued at the request of the builder or the owner of the ~~proposed~~ building. This is the first significant milestone in the compliance and enforcement process. After building construction is complete, if the enforcement agency's final inspection determines that the building still conforms ~~to the building plans and specifications and Certificate(s) of Compliance approved during plan check,~~ and complies with all applicable codes and standards, the enforcement agency may approve the building and issue the Certificate of Occupancy. The enforcement agency's final approval is also a significant milestone.

While obtaining the Building Permit and Certificate of Occupancy are two significant steps, the compliance and enforcement process is significantly more involved and requires participation by a number of other persons and organizations, including: the architect or building designer, specialty engineers (mechanical, electrical, civil, etc.), building developers, purchasing agent, general contractor, subcontractors/installers, energy consultant, plans examiners, inspectors, realtors, the building owner, and third-party inspectors (HERS raters). This chapter describes the overall compliance and enforcement process and identifies the responsibilities for each person or organization.

Where the building construction is under the jurisdiction of a state agency, no construction of any state building can begin until the Department of General Services (DGS), or the state agency that has jurisdiction over the property, determines that:

- the construction is designed to comply with the requirements of Title 24, Part 6 (Building Energy Efficiency Standards);
- the documentation requirements of §10-103(a)1 have been met (Certificate(s) of Compliance); and
- ~~and that~~ the building plans indicate the features and performance specifications needed to comply with the Standards.

The responsible state agency must notify the Commission's Executive Director of its determination.

2.1.1 Compliance Document Registration

§10-103
Reference Joint Appendix JA7
Reference Nonresidential Appendix NA1

Beginning on January 1, 2015, new requirements for a documentation procedure called *registration* will go into effect. *Registration* documentation is required for the construction and alteration of nonresidential buildings. *Registration* requirements will be described in this chapter, and elsewhere in this manual, as applicable. Also, *Reference Joint Appendix JA7* provides detailed descriptions of document registration procedures and individual responsibilities for registration of Certificate(s) of Compliance, Certificate(s) of Installation, and Certificate(s) of Acceptance Testing. More details regarding the *registration* requirements may also be found in *Reference Nonresidential Appendix NA1*.

When *registration* is required, persons responsible for completing and submitting compliance documents (Certificate(s) of Compliance, Certificate(s) of Installation, and Certificate(s) of Acceptance) are required to submit the compliance document~~form~~(s) electronically to an approved nonresidential data registry for registration and retention. *Registration* of the nonresidential compliance documentation will be in addition to registering Certificate(s) of Field Verification and Diagnostic Testing with an approved HERS provider data registry when HERS testing is required (see Section 2.2 of this chapter).

Compliance documents submitted to an approved nonresidential data registry shall be certified and signed by the applicable responsible person (§10-103). The nonresidential data registry shall assign a unique *registration* number to the document(s), provided the documents are completed correctly and a certification/signature is provided by the responsible person. The "registered" document will be retained by the nonresidential data registry, and copies of the unique registered document(s) will be made available via secure internet website access to authorized users of the ~~nonresidential data~~ registry. ~~for use~~These are used to ~~in~~ make ~~ing~~ electronic or paper copies of the registered document(s) for submittals to the enforcement agency as required, including posting copies in the field for enforcement agency inspections, and providing copies to the building owner (see Section 2.3.2 of this chapter).

Examples of authorized users of the nonresidential data registry may include energy consultants, builders, building owners, construction contractors and installers, enforcement agencies, the Energy Commission, and other parties to the compliance and enforcement process that the documents are designed to support. Authorized users of the

nonresidential data registry will be granted read/write access rights to only the electronic data that pertains to their project(s).

NOTE: Documents submitted to public agencies for code compliance are considered public information.

This chapter is organized as follows:

2.1 Overview

2.2 The Compliance and Enforcement Process

2.3 Final Inspection by the Enforcement Agency and Issuance of the Certificate of Occupancy

2.4 Compliance Documentation

2.5 Roles and Responsibilities

2.2 The Compliance and Enforcement Process

The process of complying with and enforcing the Standards involves many parties. Those involved may include the architect or building designer, building developers, purchasing agent, general contractor, subcontractors/installers, energy consultant, plans examiners, inspectors, realtors, the building owner, and third party inspectors (HERS raters). Communication between these parties is essential for the compliance/enforcement process to run efficiently.

The Standards specify detailed reporting requirements that are intended to provide design, construction, and enforcement parties with needed information to complete the building process and ensure that the energy features are installed. Each party is accountable for ensuring that the building's energy features are correctly installed as applicable to their area of responsibility. This section outlines and discusses the responsibilities and requirements during each phase of the compliance and enforcement process (see *Figure 2-1* for a general overview).

Beginning on January 1, 2015, contingent upon approval of a nonresidential data registry by the Energy Commission, all nonresidential energy compliance documents will need to be registered with a nonresidential data registry prior to submittal to an enforcement agency. See Section 2.1.1 for more detailed information on this process. The registration of documents prior to submittal to an enforcement agency accomplishes the requirements for the retention of a completed and signed copy of the submitted energy compliance documentation. Section 10-103 of the Building Energy Efficiency Standards outlines the registration requirements for compliance documents. Document retention is vital to compliance and enforcement follow-up actions and other quality assurance processes that help to ensure realization of energy savings from installed energy features. Although some local enforcement agencies elect to retain copies of submitted energy compliance documents, many jurisdictions do not retain these documents. Thus, the Building Energy Efficiency Standards requirement for registration of the energy compliance documentation

in a nonresidential data registry ensures that document retention is accomplished for all nonresidential construction projects. General information describing registration procedures that are specific to the design, construction and inspection phases follow in this chapter. Refer also to Reference Joint Appendix JA7 and Reference Nonresidential Appendix NA1 for more detailed descriptions of these document registration procedures that apply to each phase of the building energy code compliance and enforcement process.

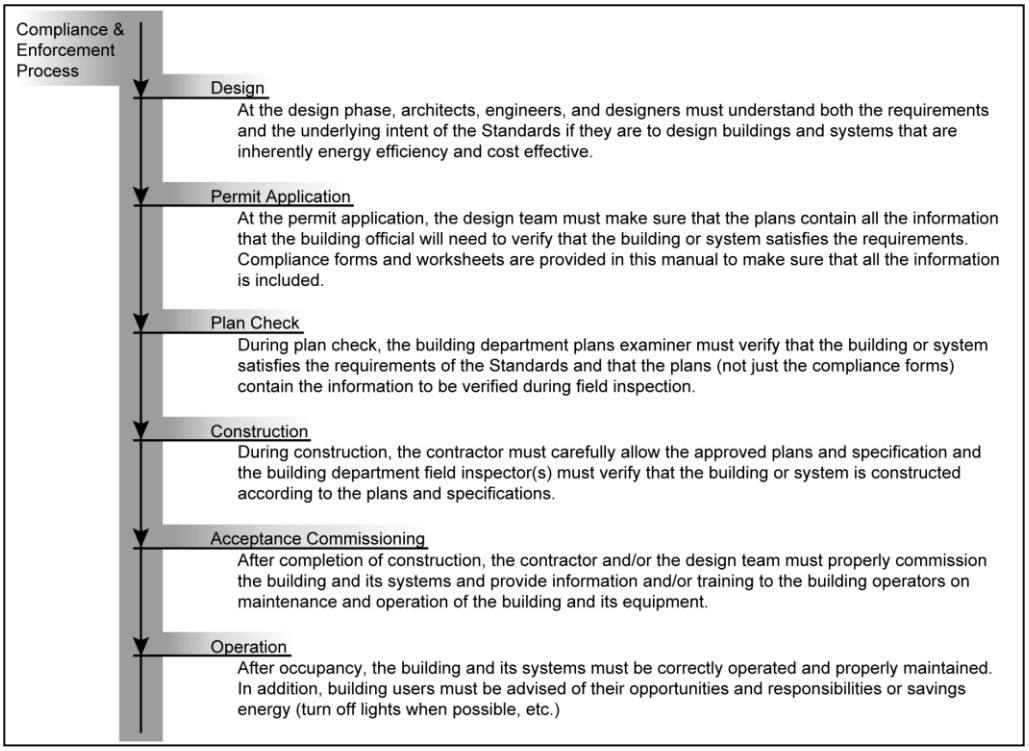

Figure 2-1 – The Compliance and Enforcement Process

2.2.1 Certificate(s) of Compliance

§10-103(a); §120.8

~~A.~~ 2.2.1.1 ***Design Phase and Building Commissioning Certificate(s) of Compliance***

During the design phase, the building plans and specifications are developed that define the building or system that will be constructed or installed. ~~The design must incorporate features that are in compliance with applicable codes and Standards.~~ The building or system's overall design must be detailed in the construction documents and specifications, and these documents must be submitted to the enforcement agency for approval. Parties associated with the design phase must ensure that the building or system design specifications comply with the Standards, and that the ~~specifications for the~~ energy features given on the construction documents are consistent with the Certificate(s) of Compliance for the building or system.

The Design Review Kickoff Certificate(s) of Compliance and the Construction Document Design Review Checklist Certificate(s) of Compliance must be reviewed and signed depending on the size of the building (see *Table 2-1*):

- For buildings larger than 50,000 square feet, or for buildings with complex mechanical systems -, an independent third party engineer, architect or contractor review of these documents is required to ensure required design features are included. This is a new requirement under the 2013 Building Energy Efficiency Standards.
- Reviews will be documented by completing Design Review Kickoff Certificate(s) of Compliance and Construction Document Design Review Certificate(s) of Compliance documentation (see *Table 2-1*). Buildings between 10,000 and 50,000 square feet – an will require completion of these Design Certificate(s) of Compliance by an in-house engineer or architect not associated with the project under review or a third party engineer.
- For buildings less than 10,000 square feet – , these Design Certificate(s) of Compliance may be completed by the the design engineer or architect of record.

The Plans plans Examiner examiner will be responsible for verifying that the Design Review Kickoff and Construction Document Design Review Certificate(s) of Compliancethese documentfsorms are submitted on the building plans and complete when required. More details regarding these Design Review Certificate(s) of Compliance documents forms and the requirements for building commissioning are provided in Chapter 12 of this manual.

B. 2.2.1.2 ***Building Plans and Specifications and Certificate(s) of Compliance***

During the design phase, the architect, mechanical engineer and lighting designer must determine whether the building or system design complies with the Standards. An energy consultant or other professional (Documentation Author) may assist the building designer(s) by providing calculations that determine the energy compliance impact of building features being proposed for the design. Additionally, throughout the design phase, recommendations or alternatives may be suggested by energy consultants or energy documentation authors to assist the designer in achieving compliance with the Standards.

The building or system design plans and specifications are required to be complete with regard to specification of the energy efficiency features selected for compliance with the Standards, which, and those specifications must be detailed on the Certificate(s) of Compliance submitted to the enforcement agency . For newly constructed buildings and additions, Certificate(s) of Compliance documentation shall be submitted that details the energy efficiency features for the building Envelope, Lighting (Indoor and Outdoor), and Mechanical systems (see *Table 2-1* for a complete list of compliance formsdocuments). to demonstrate compliance with the Standards. It is the responsibility of the builder/designer to ensure that the energy efficiency features detailed on the Certificate(s) of Compliance are specified in the respective sections of the building plans. Some examples of these specifying the energy efficiency features in the respective sections of the building plans include:

1. Specifying the lighting fixtures and their wattages, lighting controls, etc. from the Lighting Certificate(s) of Compliance for each room in a lighting schedule, lighting fixture legend for the floor plan, etc. on the eElectrical pPlans;
2. Specifying the window and skylight U-Factor and SHGC values from the Envelope Certificate(s) of Compliance in a window/skylight schedule, window/skylight legend for the floor plan, etc. on the sStructural/aArchitecture Pplans;

3. Specifying the wall, floor, and roof/ceiling insulation R-values from the Envelope Certificate(s) of Compliance in a framing plan, the structural details, etc. on the sStructural/~~Architecture~~ architecture pPlans; and
4. Specifying the HVAC equipment SEER, EER, AFUE, etc. efficiency values, duct insulation values, etc. from the Mechanical Certificate(s) of Compliance in an ~~Equipment~~ equipment sSchedule on the mMechanical pPlans.

NOTE: The builder/designer should consult with the enforcement agency regarding methods of specifying energy features on the building plans for approval.

Any change in the design specifications, during any phase of design or construction that changes the energy features specified for the design, necessitates recalculation of the energy code compliance and issuance of a revised Certificate(s) of Compliance ~~for approval by the enforcement agency that is consistent with the revised building plans and specifications for the proposed building or system~~. If recalculation indicates that the building no longer complies, alternate building features must be selected that bring the design back into compliance with the Standards. ~~-~~The building plans and specifications ~~documentation~~ for the design must be revised to be consistent with the energy features shown on the revised Certificate(s) of Compliance, and ~~then the revised building plans and specifications and compliance documentation~~ must be resubmitted to the enforcement agency for approval.

The discussion in this section emphasizes the need to coordinate energy efficiency feature selection ~~considerations~~ concurrently with other building design considerations as part of the overall design development process. ~~so~~ This ensures that the completed design specifications represented on the final construction documents submitted to the enforcement agency ~~for approval~~ are complete and consistent with the Certificate(s) of Compliance and~~; thus~~ in compliance with the Standards' ~~requirements~~.

The next section on Integrated Design discusses briefly how concurrent development of other aspects of the design can serve to improve the quality of the final design, and diminish the need for revision of the construction documentation later in the plan review or construction process.

~~C.~~ 2.2.1.3 *Integrated Design*

Integrated design is the consideration that brings the design of all related building systems and components together. It brings together the various disciplines involved in designing a building or system and reviews their recommendations as a whole. It recognizes that each discipline's recommendations have an impact on other aspects of the building project. This approach allows for optimization of both building performance and cost.

> *~~Too often~~For example, a lot of the time HVAC systems are designed without regard for lighting systems. Or, lighting systems are designed without consideration of daylighting opportunities.*

The architect, mechanical engineer, electrical engineer, contractors, and other team members each have their scope of work and often pursue the work without adequate communication and interaction with other team members. This can result in improper system sizing, or systems that are optimized for non-typical conditions.

Even a small degree of integration provides some benefit, allowing professionals working in various disciplines to take advantage of design opportunities that are not apparent when they are working in isolation. This can also point out areas where trade-offs can be implemented to enhance ~~resource~~ energy efficiency. Design integration is the best way to

avoid redundancy or conflicts with aspects of the building project planned by others. The earlier that integration is introduced in the design process, the greater the benefit that can be expected.

For a high performance school project, team collaboration and integration of design choices should begin no later than the programming phase. In addition, the project team is likely to be more broadly defined than in the past, and may include energy analysts, materials consultants, lighting designers, life-cycle cost consultants and commissioning agents. Design activities may expand to include collaborative modeling exercises, and simulations.

This manual provides details and implementation rules for individual design strategies. Though these individual strategies can improve building or system energy efficiency, whole-building analysis and integrated design can balance energy and cost concerns more effectively.

2.2.2 Permit Application – Certificate(s) of Compliance

§10-103(a); §10-103(a)2

~~A.~~ 2.2.2.1 ***Submittal and Signatures***

When the design is complete, construction documents are prepared, other approvals (planning department, water, etc.) are secured, and the owner, developer, or architect submits an application for a building permit to the enforcement agency. Permit application is generally the last step in the process of planning and design. At this point, the infrastructure (streets, sewers, water lines, electricity, gas, etc.) is likely to be in place or is under construction, and the process of preparation for the construction or installation of the building or system design can begin.

Certificate(s) of Compliance are required to be submitted along with the construction documents, and these documents must be approved by the enforcement agency. If the prescriptive method is utilized for compliance, the Certificate(s) of Compliance documentations ~~forms~~ for the building envelope, mechanical systems, and the lighting systems must all be submitted. If the performance method is utilized for the entire building, a compiled set of Certificate(s) of Compliance documentation pages is prepared (the PERF-1C document~~form~~) utilizing one of the compliance software applications approved by the Energy Commission that summarizes the energy features for the building. The compliance software will still produce Certificate(s) of Compliance documentations ~~forms~~ for the building envelope, mechanical systems, and lighting systems in addition to the PERF-1C document~~form. , and a~~All of these ~~forms~~ documents must be submitted to the enforcement agency for approval. ~~-~~Certificate(s) of Compliance documentation requirements are specified in §10-103(a)1 and §10-103(a)2 of the Standards.

For all buildings, the Certificate(s) of Compliance must be signed by the person(s) eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design to certify conformance with the Standards. If more than one person has responsibility for the building design, each person must sign the Certificate of Compliance document(s) applicable to that portion of the design for which the person is responsible. Alternatively, the person with chief responsibility for the building design may prepare and sign the Certificate of Compliance document(s) for the entire design. The signatures must be original signatures on paper documents or electronic signatures on electronic documents when *registration* is required (see Reference Joint Appendix JA7 for more details regarding electronic signatures).

~~B.~~ 2.2.2.2 ***Design Review Certificate(s) of Compliance***

~~New for the 2013 Standards:~~

The Design Review Kickoff Certificate(s) of Compliance and Construction Document Design Review Certificate(s) of Compliance must be signed by the approved design reviewer specified in §10-103(a)1 and submitted for approval by the enforcement agency. These documents~~forms~~ ~~-~~are required for all projects regardless of the compliance method used (the prescriptive method vs. the performance method). In order to demonstrate compliance, all projects are required to complete Certificate(s) of Compliance ~~forms~~ documents NRCC-CXR-01 and NRCC-CXR-02. The Certificate(s) of Compliance ~~forms~~ documents NRCC-CXR-03 and NRCC-CXR-04 are required based on the HVAC system types included in the project, based on the definition of complex mechanical systems. The ~~B~~building ~~O~~owner (or owner's representative), design engineer and design reviewer must

all sign and date the Design Review Signature Certificate of Compliance documentform NRCC-CXR-05 once the design review has been completed. Contractors accepting the responsibilities of the engineer under the provision of the Business and Profession Code may sign the documentsforms in place of the design engineer. All applicable design review compliance forms documents must be submitted. See Chapter 12 of this manual for more details regarding which Design Certificate of Compliance forms documents are required.

C. 2.2.2.3 *Preparation and Incorporation onto the Plans*

The length and complexity of the Certificate(s) of Compliance documentation may vary considerably depending upon the size and complexity of the building(s) or system(s) that are being permitted, regardless of whether the performance approach or the prescriptive approach is utilized for compliance. The Certificate(s) of Compliance documents are commonly prepared by an energy consultant or an energy compliance professional (Documentation Author). An energy consultant should be knowledgeable about the details of the requirements of the Standards and can benefit the design team by offering advice for the selection of the compliance methodology (prescriptive or performance), and the selection of the energy features utilized for compliance with the Standards. An energy consultant may also provide recommendations for the most cost effective mix of building energy features for the design.

The Administrative Regulations §10-103(a)2 require that the Certificate(s) of Compliance and any applicable supporting documentation be submitted with permit applications and that the Certificate(s) of Compliance be incorporated into the building plans. Many enforcement agencies require that all of the energy compliance documentsforms be incorporated electronically onto the building plans. This enables the plans examiner to verify that the building or system design specifications shown on construction documentation are consistent with the energy features specified on the Certificate(s) of Compliance. -The Certificate(s) of Compliance forms documents submitted to the enforcement agency to demonstrate compliance shall conform to a format and informational order and content approved by the Energy Commission (see §10-103(a)1A for more details). Samples of the Energy Commission-approved documentsforms are located in Appendix A of this manual. A listing of Certificate of Compliance forms documents is available in Table 2-1Table 2-1Table 2-1 on the next page.

D. 2.2.2.4 *Registration*

Beginning January 1, 2015, *registration* will be required for all Certificate(s) of Compliance submitted to the enforcement agency and must be a registered copy from an approved nonresidential data registry. The registration process requires the builder or designer to submit the Certificate(s) of Compliance information and an electronic signature to an approved nonresidential data registry in order to produce a completed, dated, and signed electronic Certificate(s) of Compliance that is retained by the registry. The Certificate of Compliance is assigned a unique registration number, thenand then copies of the unique registered Certificate of Compliance forms documents are made available to authorized users of the nonresidential data registry for use in making electronic or paper copies of the registered document(s) for submittal to the enforcement agency as required.

Examples of authorized users of the nonresidential data registry may include energy consultants, builders, building owners, construction contractors and installers, enforcement agencies, the Energy Commission, and other parties to the compliance and enforcement process that the documents are designed to support. Authorized users of the nonresidential data registry will be granted read/write access rights to only the electronic data that pertains to their project(s).

Table 2-1 – Certificate of Compliance ~~Forms~~Documents

Design Review~~Design~~	Electrical~~Envelope~~	Envelope~~Mechanical~~	Lighting~~Lighting~~	Outdoor Lighting~~Outdoor~~	Sign Lighting
NRCC-CXR-01-E Design Review Kickoff **NRCC-CXR-02-E** Construction Documents– All Buildings **NRCC-CXR-03-E** Construction Document Review – HVAC Simple **NRCC-CXR-04-E** Construction Document Review – HVAC Complex **NRCC-CXR-05-E** Design Review Signature Page~~**NRCC-CXR-01-E** Design Review Kickoff~~ ~~**NRCC-CXR-02-E** Construction Documents– All Buildings~~ ~~**NRCC-CXR-03-E** Construction Document Review – HVAC Simple~~ ~~**NRCC-CXR-04-E** Construction Document Review – HVAC Complex~~ ~~**NRCC-CXR-05-E** Design Review Signature Page~~	**NRCC-ELC-01-E** Disaggregation of Electrical Circuits~~NRCC-ENV-01-E **Envelope Component Approach**~~ ~~**NRCC-ENV-02-E** Fenestration Worksheet~~ ~~**NRCC-ENV-03-E** Roof Replacement Tradeoff Calculation~~ ~~**NRCC-ENV-04-E** Daylit Zone Worksheet~~ ~~**NRCC-ENV-05-E** Fenestration Certification Label~~	**NRCC-ENV-01-E** Envelope Component Approach **NRCC-ENV-02-E** Fenestration Worksheet **NRCC-ENV-03-E** Roof Replacement Tradeoff Calculation **NRCC-ENV-04-E** Daylit Zone Worksheet **NRCC-ENV-05-E** Fenestration Certification Label **NRCC-ENV-06-E** Area Weighted Average Worksheet~~**NRCC-MCH-01-E** Certificate of Compliance Declarations~~ ~~**NRCC-MCH-02-E** Dry ad Wet Systems~~ ~~**NRCC-MCH-03-E** Mechanical Ventilation and Reheat~~ ~~**NRCC-MCH-04-E** Single Zone Systems Declaration~~ ~~**NRCC-MCH-05-E** Single Zone Systems Requirements~~	**NRCC-LTI-01-E** Certificate of Compliance and Field Inspection Checklist **NRCC-LTI-02-E** Lighting Controls Credit Worksheet **NRCC-LTI-03-E** Indoor Lighting Power Allowance **NRCC-LTI-04-E** Tailored Method Worksheet **NRCC-LTI-05-E** Line Voltage Track Lighting Worksheet~~**NRCC-LTI-01-E** Certificate of Compliance and Field Inspection Checklist~~ ~~**NRCC-LTI-02-E** Lighting Controls Credit Worksheet~~ ~~**NRCC-LTI-03-E** Indoor Lighting Power Allowance~~ ~~**NRCC-LTI-04-E** Tailored Method Worksheet~~ ~~**NRCC-LTI-05-E** Line Voltage Track Lighting Worksheet~~	**NRCC-LTO-01-E** Certificate of Compliance and Field Inspection Checklist **NRCC-LTO-02-E** Outdoor Lighting Worksheet **NRCC-LTO-03-E** Outdoor Lighting Power Allowance	**NRCC-LTS-01-E** Certificate of Compliance

~~Solar Covered Processes~~Mechanical	Plumbing	Covered Processes~~Electrical Plumbing~~		Solar
NRCC-MCH-01-E Certificate of Compliance Declarations **NRCC-MCH-02-E** Dry ad Wet Systems **NRCC-MCH-03-E** Mechanical Ventilation and Reheat **NRCC-MCH-04-E** Single Zone Systems Declaration **NRCC-MCH-05-E** Single Zone Systems Requirements **NRCC-MCH-06-E** Maximum Cycles of Concentration Worksheet **NRCC-MCH-07-E** Prescriptive Requirements – Fan Power Consumption ~~**NRCC-SRA-01-E** Solar Ready Areas~~ ~~**NRCC-SRA-2-E** Minimum Solar Zone Area Worksheet~~ ~~**NRCC-PRC-01-E** Covered Process~~ ~~**NRCC-PRC-02-E** Garage Exhaust~~ ~~**NRCC-PRC-03-E** Commercial Kitchens~~ ~~**NRCC-PRC-04-E** Data Centers~~ ~~**NRCC-PRC-05-E** Prescriptive/ Performance Commercial Refrigeration~~ ~~**NRCC-PRC-06-E** Refrigerated Warehouses~~	**NRCC-PLB-01-E** Water Heating Systems~~NRCC-PRC-07-E Refrigerated Warehouses 3,000 ft^2 or greater~~ ~~**NRCC-PRC-08-E** Refrigerated Warehouses 3,000 ft^2 or greater (served by same refrigeration system)~~ ~~**NRCC-PRC-09-E** Laboratory Exhaust~~ ~~**NRCC-PRC-10-E** Compressed Air Systems~~ ~~**NRCC-PRC-11-E** Process Boilers~~	**NRCC-PRC-01-E** Covered Process **NRCC-PRC-02-E** Garage Exhaust **NRCC-PRC-03-E** Commercial Kitchens **NRCC-PRC-04-E** Data Centers **NRCC-PRC-05-E** Prescriptive/ Performance Commercial Refrigeration **NRCC-PRC-06-E** Refrigerated Warehouses **NRCC-PRC-07-E** Refrigerated Warehouses 3,000 ft^2 or greater~~NRCC-ELC-01-E Disaggregation of Electrical Circuits~~	**NRCC-PRC-08-E** Refrigerated Warehouses 3,000 ft^2 or greater (served by same refrigeration system) **NRCC-PRC-09-E** Laboratory Exhaust **NRCC-PRC-10-E** Compressed Air Systems **NRCC-PRC-11-E** Process Boilers **NRCC-PRC-12-E** Elevator Lighting & Ventilation Controls **NRCC-PRC-13-E** Escalators & Moving Walkways Speed Control~~NRCC-PLB-01-E Water Heating Systems~~	**NRCC-SRA-01-E** Solar Ready Areas **NRCC-SRA-2-E** Minimum Solar Zone Area Worksheet **NRCC-STH-01-E** OG100 Solar Water Heating Systems Worksheet
Refer to Appendix A of this manual for a complete list and samples of Certificate of Compliance documents~~forms~~.				

2.2.3 Plan Check

§10-103(d)1

~~A.~~ 2.2.3.1 *Plans and Specifications*

Local enforcement agencies are required to check submitted building plans and specifications to determine whether the design conforms to the applicable codes and ~~s~~standards, thus the plan check must include checking the energy efficiency specifications for the design to confirm compliance with the Standards. Vague, missing, or incorrect information on the construction documents may be identified by the plans examiner as requiring correction, and the permit applicant must revise the construction documents to make the corrections or clarifications, and then resubmit the revised building plans and specifications for verification by the plans examiner. When the permit applicant submits comprehensive, accurate, clearly defined building plans and specifications, it helps to speed the plan review process.

During plan review, the enforcement agency must verify that the building's design details specified on the construction documents conform to the applicable energy code features information specified on the submitted Certificate(s) of Compliance documents. ~~It is important that the building design features represented on the approved building plans and specifications for the proposed building conform to the energy features specified on the approved Certificate(s) of Compliance.~~ This is necessary since materials purchasing personnel and building construction craftsmen in the field may rely solely on a copy of the building plans and specifications approved by the enforcement agency for direction in performing their responsibilities.

It is worthwhile to mention here that later in the construction/installation process, the person responsible for construction will be required to sign a Certificate(s) of Installation confirming that the installed features ~~, materials, components or manufactured devices~~ conform to the requirements specified in the building plans ~~and specifications~~ and the Certificate(s) of Compliance approved by the enforcement agency. If at that time it is determined that the actual construction/installation is not consistent with the approved building plans and specifications or Certificate(s) of Compliance, the applicable documentation is required to be revised to reflect the actual construction/installation specifications, ~~and the revised documentation~~which must indicate compliance with the energy code requirements. If necessary, corrective action must be taken in order to bring the construction/installation into compliance. Thus to emphasize, it is of utmost importance that the building design features represented on the approved building plans and specifications for the proposed building comply with the Standards' requirements specified on the approved Certificate(s) of Compliance, and that the actual construction/installation is consistent with those approved documents.

~~B.~~ 2.2.3.2 *Energy Plan Review*

The enforcement agency is responsible for verifying that all required compliance documents have been submitted for plan review and ~~that they~~ do not contain errors. When the compliance documents are produced by an Energy Commission-approved computer software application, it is unlikely that there will be computational errors on the Certificate(s) of Compliance documents~~,~~. However, ~~but~~ it is essential that the plans examiner verifies that the building design represented on the proposed building ~~plans and~~ specifications is the same building design represented in the Certificate(s) of Compliance documents. Some examples of how the plans examiner will verify that the energy efficiency features detailed on the Certificate(s) of Compliance are specified in the respective sections of the building plans include:

1. Verifying the lighting fixtures and their wattages, lighting controls, etc. from the Lighting Certificate(s) of Compliance on the Electrical Plans in a lighting schedule, lighting fixture legend for the floor plan, etc.;

2. Verifying the window and skylight U-Factor and SHGC values from the Envelope Certificate(s) of Compliance on the Structural/Architecture Plans in a window/skylight schedule, window/skylight legend for the floor plan, etc.;
3. Verifying the wall, floor, and roof/ceiling insulation R-values from the Envelope Certificate(s) of Compliance on the Structural/Architecture Plans in a framing plan, the structural details, etc.; and
4. Verifying the HVAC equipment SEER, EER, AFUE, etc. efficiency values from the Mechanical Certificate(s) of Compliance on the Mechanical Plans in an Equipment Schedule.

NOTE: The enforcement agency should clearly articulate to the builder/designer the acceptable methods of specifying energy features on the building plans for approval.

To obtain a list of Energy Commission-approved energy code compliance software applications, visit the Commission Website at: http://www.energy.ca.gov/title24/2013standards/index.html; or call the Energy Standards Hotline at 1-800-772-3300.

2.2.4 Building Permit

§10-103(d)1

After the plans examiner has reviewed and approved the building plans and specifications and energy compliance documentation for the project, a building permit may be issued by the enforcement agency at the request of the builder. Issuance of the building permit is the first significant milestone in the compliance and enforcement process. The building permit is the green light for the contractor to begin work. In many cases, building permits are issued in phases. Sometimes there is a permit for site work and grading that precedes the permit for actual ~~building~~ construction. In large Type I or II buildings, the permit may be issued in several phases: site preparation, structural steel, etc.

2.2.5 Construction Phase – Certificate(s) of Installation

§10-103(a)3

~~A.~~ 2.2.5.1 *Change Orders*

Upon receiving a building permit from the local enforcement agency, the general contractor can begin construction. The permit requires the contractor to construct the building or system in compliance with the approved building plans and specifications, but often there are variations. Some of these variations are formalized by the contractor through change orders. When change orders are issued, it is the responsibility of the design team and the local enforcement agency to verify that compliance with the energy code is not compromised by the change order. In some cases, it is obvious that a change order could compromise energy code compliance; for instance, when an inexpensive single glazed window is substituted for a more expensive high performance dual glazed window. However, it may be difficult to determine whether a change order would compromise compliance; for instance when the location of a window is changed or when the orientation of the building with respect to the direction north is changed. Field changes that result in non-compliance require enforcement agency approval of revised building plans and energy compliance documentation to confirm that the building is still in compliance.

~~B.~~ 2.2.5.2 ***Completion and Submittal***

During the construction process, the general contractor or specialty subcontractors are required to complete various construction certificates. These certificates verify that the contractor is aware of the requirements of the Standards, and that the actual construction/installation meets the requirements.

Certificate(s) of Installation are required to be completed and submitted to certify compliance of regulated energy features such as windows and skylights, water heater, plumbing, HVAC ducts and equipment, lighting fixtures and controls, and building envelope insulation. The licensed person responsible for the building construction or for the installation of a regulated energy feature must ensure their ~~construction or installation~~ work is done in accordance with the approved building plans and specifications for the building. The responsible person must complete and sign a Certificate of Installation to certify that the installed features, materials, components or manufactured devices for which they are responsible conform to the building plans, specifications and the Certificate(s) of Compliance documents approved by the enforcement agency for the building. A copy of the completed, signed and ~~dated Certificate~~dated Certificate of Installation must be posted at the building site for review by the enforcement agency, in conjunction with requests for final inspection of ~~for~~ the building.

If construction on any regulated ~~feature or~~ portion of the building will be impossible to inspect because of subsequent construction, the enforcement agency may require the Certificate(s) of Installation to be posted upon completion of that feature/portion of the building. The Certificate of Installation ~~forms~~ documents submitted to the enforcement agency shall conform to a format and informational order and content approved by the Energy Commission (see §10-103(a)3A for more details). ~~-~~Samples of the Energy Commission-approved documents~~forms~~ are located in Appendix A of this manual. A listing of Certificate of Installation ~~forms~~ documents is available in Table 2-2~~Table 2-2~~. A copy of the Certificate(s) of Installation must be included with the documentation the builder provides to the building owner at occupancy as specified in §10-103(b).

If for any reason the ~~approved plans and specifications and Certificate(s) of Compliance for the building are inconsistent with regard to their requirements for the building, or if the~~ actual construction/installation performed does not conform to the approved plans and specifications and Certificate(s) of Compliance, corrective action must be performed to bring ~~all approved~~the documentation and ~~the actual~~ installation into compliance prior to completion and submittal of the Certificate(s) of Installation.

~~C.~~ 2.2.5.3 ***Registration***

For building permit applications submitted on or after January 1, 2015, all of the Certificate of Installation documents~~forms~~ must be registered documents from an approved nonresidential data registry. When registration is required, the builder or installing contractor must submit information to an approved nonresidential data registry in order to produce a completed, dated, and signed electronic Certificate of Installation that is retained by the registry for use by authorized users of the registry. The Certificate of Installation is assigned a unique registration number and ~~, then~~ copies of the unique registered Certificate of Installation ~~forms~~ documents are made available to authorized users of the nonresidential data registry. These are used for ~~for use in~~ making electronic or paper copies of the registered document(s) for submittal to the enforcement agency as required, including posting copies in the field for enforcement agency inspections, and providing copies to the building owner (see Section 2.3.2 of this chapter).

Examples of authorized users of the nonresidential data registry may include energy consultants, builders, building owners, construction contractors and installers, enforcement agencies, the Energy Commission, and other parties to the compliance and enforcement process that the documents are designed to support. Authorized users of the nonresidential data registry will be granted read/write access rights to only the electronic data that pertains to their project(s).

Table 2-2 – Certificate of Installation ~~Forms~~Documents

Component	**Certificate of Installation ~~Form~~Document Identifier**
Electrical Power Distribution	NRCI-ELC-01-E
Envelope	NRCI-ENV-01-E
Mechanical	NRCI-MCH-01-E
Lighting *Validation of Certificate of Compliance*	NRCI-LTI-01-E
EMCS - Lighting Control System~~Energy Management Control System or Lighting Control System~~	NRCI-LTI-02-E
Line Voltage Track Lighting	NRCI-LTI-03-E
Two Interlocked Lighting Systems	NRCI-LTI-04-E
Power Adjustment Factors	NRCI-LTI-05-H ~~(NOTE: Verified by a HERS Rater)~~
Additional Videoconference Studio Lighting	NRCI-LTI-06
Outdoor Lighting *Validation of Certificate of Compliance*	NRCI-LTO-01-E
EMCS - Lighting Controls System~~EMCS - Lighting Controls Systems~~	NRCI-LTO-02-E
Sign Lighting	NRCI-LTS-01-E
Refrigerated Warehouse	NRCI-PRC-01-E
Water Heating *Validation of Certificate of Compliance*	NRCI-PLB-01-E
High Rise Residential/Hotel/Motel Central Hot Water System Distribution	NRCI-PLB-02-E
High Rise Residential/Hotel/Motel Single Dwelling Unit Hot Water System Distribution	NRCI-PLB-03-E
High Rise Multifamily Central Hot Water System Distribution	NRCI-PLB-21-H
High Rise Single Dwelling Unit Hot Water System Distribution	NRCI-PLB-22-H
Solar Photovoltaic	NRCI-SPV-01-E
Solar Water Heating	NRCI-STH-01-E
Refer to Appendix A of this manual for a complete list of the Nonresidential documents ~~forms~~.	

2.2.6 Building Commissioning - Certificate of Compliance

~~New for the 2013 Building Energy Efficiency Standards,~~ Building Commissioning ~~will be~~is required for all new nonresidential buildings equal to or greater than 10,000 ft^2. The Certificate(s) of Compliance for Building Commissioning document~~form~~ (see Chapter 12) must be signed by the owner/owner's representative; architect, engineer or designer of record, and the commissioning coordinator and submitted for approval by the enforcement agency. For buildings that are less than 10,000 ft^2, only the design review sections must be completed~~, as outlined in Ssection 2.2.2~~. More details regarding the Building Commissioning Certificate(s) of Compliance ~~forms~~ documents and the requirements ~~for building commissioning~~ are provided in Chapter 12 of this manual.

2.2.7 Acceptance Testing – Certificate(s) of Acceptance

§10-103(a)4; §10-103-A; §10-103-B

~~A.~~ 2.2.7.1 ***Acceptance Tests***

Acceptance testing or acceptance criteria verification is required for certain lighting, HVAC controls, air distribution ducts, and envelope features, and for equipment that requires proper calibration at the time of initial commissioning in order to ensure that operating conditions that could lead to premature system failure are prevented, and optimal operational efficiency is realized. The features that require acceptance testing are listed in Table 2-3~~Table 2-3~~Table 2-3 on the next page. ~~New acceptance tests were added under the 2013 Building Energy Efficiency Standards and include:~~

~~1. Demand Responsive Controls acceptance testing for indoor lighting;~~

~~2. Mechanical Systems (evaporators, condensers, compressors, electric resistance underslab heating, etc.) acceptance testing for refrigerated warehouses;~~

~~3. Mechanical and Lighting Systems (condensers, compressors, liquid subcooling, display case lighting controls, refrigeration heat recovery, etc.) acceptance testing for commercial refrigeration;~~

~~4. Type I hood systems acceptance testing for commercial kitchens; and~~

~~5. Ventilation system acceptance testing for parking garages.~~

~~B.~~ 2.2.7.2 ***Acceptance Test Technician Certification Providers (ATTCP) and Certified Technicians***

~~New for the 2013 Building Energy Efficiency Standards, t~~Technicians who conduct acceptance testing for lighting and mechanical systems, when required by the Standards, will need to be trained and certified by an Energy Commission-approved Acceptance Test Technician Certification Provider (ATTCP). A few ~~P~~providers have achieved interim approval as an ATTCP pending approval by the Energy Commission that they meet the requirements of §10-103-A or §10-103-B. Builder and installers will need to ensure that the technician conducting the required acceptance testing, and completing t~~and signing t~~he required Certificate(s) of Acceptance~~,~~ for lighting and mechanical systems are certified by an approved ATTCP. Enforcement agency field inspectors will need to verify that the submitted Certificate(s) of Acceptance for lighting and mechanical systems are signed by a technician who is certified with an approved ATTCP at final inspection. More details regarding the requirements and certification process for ATTCPs are provided in Chapter 13 of this manual.

~~C.~~ 2.2.7.3 ***Registration***

For building permit applications submitted on or after January 1, 2015, all of the Certificate of Acceptance documents~~forms~~ must be registered documents from an approved nonresidential data registry. When registration is required, the builder, installing contractor, or certified technician must submit information to an approved nonresidential data registry in order to produce a completed, dated, and signed electronic Certificate of Acceptance that is retained by the registry for use by authorized users of the registry. The Certificate of Acceptance is assigned a unique registration number, then copies of the unique registered Certificate of Acceptance documents~~forms~~ are made available to authorized users of the nonresidential data registry for use in making electronic or paper copies of the registered document(s) for submittal to the enforcement agency as required, including posting copies in the field for enforcement agency inspections, and providing copies to the building owner (see Section 2.3.2 of this chapter).

Examples of authorized users of the nonresidential data registry may include energy consultants, builders, building owners, construction contractors and installers, certified technicians, enforcement agencies, the Energy Commission, and other parties to the compliance and enforcement process that the documents are designed to support. Authorized users of the nonresidential data registry will be granted read/write access rights to only the electronic data that pertains to their project(s).

Table 2-3 – Measures Requiring Acceptance Testing

~~Category~~	~~Measure~~
~~Envelope~~	
~~Fenestration Acceptance~~	~~Site-Built Fenestration – Label Certificate Verification~~
~~Mechanical~~	
~~Outdoor Air~~	~~Variable Air Volume Systems Outdoor Air Acceptance~~ ~~Constant Volume System Outdoor Air Acceptance~~
~~HVAC Systems~~	~~Constant- Volume Single Zone, Unitary A/C and Heat Pumps~~
~~Air Distribution Systems~~	~~Air Distribution Acceptance~~
~~Air Economizer Controls~~	~~Economizer Acceptance~~
~~Demand Control Ventilation (DCV) Systems~~	~~Packaged Systems DCV Acceptance~~
~~Variable Frequency Drive Systems~~	~~Supply Fan Variable Flow Controls~~
~~Hydronic System Controls Acceptance~~	~~Valve Leakage Test~~ ~~Hydronic Variable Flow Controls~~ ~~Supply Water Temperature Reset Controls~~
~~Mechanical Systems~~	~~Automatic Demand Shed Control Acceptance~~ ~~Fault Detection & Diagnostics for DX Units~~ ~~Automatic Fault Detection & Diagnostics for Air Handling & Zone Terminal Units~~ ~~Distributed Energy Storage DX AC Systems Test~~ ~~Thermal Energy Storage (TES) Systems~~ ~~Supply Air Temperature Reset Controls~~ ~~Condenser Water Supply Temperature Reset Controls~~ ~~Energy Management Control System~~
~~Indoor Lighting~~	
~~Indoor Lighting Control Systems~~	~~Automatic Daylighting Controls Acceptance~~ ~~• Occupancy Sensor Acceptance~~ ~~• Manual Daylighting Controls Acceptance~~ ~~• Automatic Time Switch Control Acceptance~~ ~~Demand Responsive Controls~~
Category	**Measure**
Envelope	
Fenestration Acceptance	Site-Built Fenestration – Label Certificate Verification
Mechanical	
Outdoor Air	Variable Air Volume Systems Outdoor Air Acceptance Constant Volume System Outdoor Air Acceptance
HVAC Systems	Constant- Volume Single Zone, Unitary A/C and Heat Pumps
Air Distribution Systems	Air Distribution Acceptance
Air Economizer Controls	Economizer Acceptance
Demand Control Ventilation (DCV) Systems	Packaged Systems DCV Acceptance
Variable Frequency Drive Systems	Supply Fan Variable Flow Controls
Hydronic System Controls Acceptance	Valve Leakage Test Hydronic Variable Flow Controls Supply Water Temperature Reset Controls
Mechanical Systems	Automatic Demand Shed Control Acceptance

	Fault Detection & Diagnostics for Packaged DX Units Automatic Fault Detection & Diagnostics for Air Handling & Zone Terminal Units Distributed Energy Storage DX AC Systems Test Thermal Energy Storage (TES) Systems Supply Air Temperature Reset Controls Condenser Water Supply Temperature Reset Controls Energy Management Control System

Indoor Lighting	
Indoor Lighting Control Systems	Automatic Daylighting Controls Acceptance • Occupancy Sensor Acceptance • Manual Daylighting Controls Acceptance • Automatic Time Switch Control Acceptance Demand Responsive Controls
Outdoor Lighting	
Outdoor Lighting Control	Outdoor Lighting Controls • Outdoor Photocontrol • Astronomical Time Switch • Standard (non-astronomical) Time Switch
Covered Processes	
Compress Air Systems	Compressed Air System Acceptance
Commercial Kitchens	Commercial Kitchen Exhaust System Acceptance
Enclosed Parking Garages	Ventilation System Acceptance Testing
Refrigerated Warehouses	Evaporators and Evaporator Fan Motor Variable Speed Controls Condensers and Condenser Fan Motor Variable Speed Controls Air-Cooled Condensers and Condenser Fan Motor Variable Speed Controls Variable Speed Screw Compressors Electric Resistance Underslab Heating Systems
Commercial Refrigeration	Air-Cooled Condensers and Fluid Coolers Evaporative Condensers, Fluid Coolers and Cooling Towers Compressor Floating Suction Controls Liquid Subcooling Display Case Lighting Controls Refrigeration Heat Recovery
Elevators	Elevator Lighting & Ventilation Controls
Escalators & Moving Walkways	Escalators & Moving Walkways Speed Control

Outdoor Lighting	
Outdoor Lighting Control	Outdoor Motion Sensor Acceptance Outdoor Lighting Shut-off Controls • Outdoor Photocontrol • Astronomical Time Switch • Standard (non-astronomical) Time Switch
Covered Processes	
Refrigerated Warehouses	Electric Resistance Underslab Heating Systems Evaporators and Evaporator Fan Motor Variable Speed Controls Condensers and Condenser Fan Motor Variable Speed Controls Air-Cooled Condensers and Condenser Fan Motor Variable Speed Controls Variable Speed Screw Compressors Compressed Air System Acceptance
Commercial Refrigeration	Air-Cooled Condensers and Fluid Coolers Evaporative Condensers, Fluid Coolers and Cooling Towers Compressor Floating Suction Controls Liquid Subcooling Display Case Lighting Controls Refrigeration Heat Recovery
Commercial Kitchens	Commercial Kitchen Exhaust System Acceptance
Enclosed Parking Garages	Ventilation System Acceptance Testing

2.2.7.4

D. ***Verification and Documentation***

Acceptance testing must be conducted and a Certificate(s) of Acceptance must be completed and submitted before the enforcement agency can issue the Certificate of Occupancy. The procedures for performing the acceptance tests are documented in Reference Nonresidential Appendix NA7. Compliance with the acceptance requirements for a construction/installation project is accomplished by three main categories of verification and documentation that will be discussed in the subsequent segments of this section:

1. Plan review
2. Construction inspection and Certificate(s) of Installation verification
3. Functional testing and completion of the Certificate(s) of Acceptance

E. 2.2.7.5 ***Plan Review***

The installing contractor, engineer/architect of record, or owner's agent is responsible for reviewing the plans and specifications and ensuring they conform to the requirements of the Certificate(s) of Compliance and the acceptance requirements applicable to the construction/installation. Plan Review should be done prior to signing a Certificate(s) of Compliance for submittal to plan review, and also prior to completing and signing the Certificate(s) of Installation. The required acceptance tests shall be identified for the applicable building component or system on the respective Certificate(s) of Compliance. Some examples of identifying the required acceptance tests on the Certificate(s) of Compliance include:

1. The fenestration acceptance test shall be identified as required for site-built fenestration on the NRCC-ENV-01 documentform;
2. The air economizer controls acceptance test shall be identified as required for HVAC systems with economizers on the NRCC-MCH-01 documentform;

3. The lighting controls acceptance test shall be identified as required for occupancy sensors, automatic time switches, etc. on the NRCC-LTI-01 documentform;
4. The outdoor lighting controls acceptance test shall be identified as required for motion sensors, photocontrols, astronomical time switches, etc. on the NRCC-LTO-01 documentform; and

To the extent that Since making changes on paper documents may be less costly as compared to the cost of altering or replacing a completed but non-compliant building energy feature construction/installation, attention should be given to plan review early in the process, and also at critical decision points such as during subcontractor bid proposal review and materials procurement activities. If design or material specification for the construction/installation is changed subsequent to plan check approval by the enforcement agency, revised building plans aand specifications and Certificates of Compliance must be submitted for approval to the enforcement agency.

F. 2.2.7.6 *Construction Inspection and Certificate(s) of Installation Verification*

The installing contractor, engineer/architect of record or the owner's agent is responsible for performing construction inspection and completing the required Certificate(s) of Installation to confirm compliance of the regulated energy features. The certified technician (see Chapter 12) responsible for performing the acceptance tests is required to confirm that the Certificate(s) of Installation have been properly completed and signedand posted at the building site as a prerequisiteprior to the issuance of a Certificate(s) of Acceptance. A properly completed Certificate(s) of Installation is required to be submitted or posted at the building site prior to proceeding with functional testing and completion of the Certificate of Acceptance.

All regulated energy features, materials, components, or manufactured devices that were incorporated into the completed construction/installation must be inspected to confirm that they conform to the requirements detailed on the building plans and specifications , and the Certificate(s) of Compliance approved by the local enforcement agency. The Certificate(s) of Installation must be verified to be properly completed, signed by the person responsible for the construction/installation, and a copy submitted/posted on the job site with the building permits or made available for applicable inspections. Corrective action must be taken if the installation/construction is not in compliance with the building plans and specifications and Certificate(s) of Compliance approved by the enforcement agency, or if a Certificate of Installation has not been properly completed and posted. Corrective action must be performed prior to proceeding with the acceptance tests and the prior to proceeding with completion and submittal or posting of the Certificate(s) of Acceptance.

G. 2.2.7.7 *Functional Testing and Completion of the Certificate(s) of Acceptance*

The installing contractor, engineer/architect of record or owner's agent is responsible for ensuring that all applicable acceptance requirement procedures identified in the building plans and specifications and, on the Certificate(s) of Compliance, and in Reference Nonresidential Appendix NA7 are conducted bye a certified technician (see Chapter 12 of this manual). All performance deficiencies must be corrected by the builder or installing contractor and the certified technician must repeat the acceptance requirement verification procedures until allthe construction/installation of the specified systems and equipment conform to the required performance criteria, and the construction/installation is confirmed to be in compliance with the Standards.

The certified technician who conducts the applicable acceptance testing is responsible for documenting their results on the required Certificate(s) of Acceptance documentform. After

completion of the acceptance testing and documentsforms, the certified technician shall provide completed, dated, and signed copies of the Certificate(s) of Acceptance to the builder or installing contractor. When *registration* is applicable, the Certificate(s) of Acceptance must be registered with an approved nonresidential data registry. The builder or installing contractor may facilitate the *registration* process by entering the certified technicians' data results on the Certificate(s) of Acceptance into the nonresidential data registry, but the certified technician responsible for the acceptance test must provide their electronic signature in the registry in order for the documentform to be complete and registered.

A copy of the Certificate(s) of Acceptance must be posted or made available to the enforcement agency with the building permit(s) issued for the construction/installation. , and must be made available to the enforcement agency for all applicable inspections. If construction on any regulated feature or portion of the building will be impossible to inspect because of subsequent construction, the enforcement agency may require the Certificate(s) of Acceptance to be posted upon completion of that portion of the building. A copy of the Certificate(s) of Acceptance must be included with the documentation the builder provides to the building owner at occupancy as specified in §10-103(b).

H. 2.2.7.8 *Certificate(s) of Acceptance FormsDocuments*

Acceptance tests are required to be documented using the applicable acceptance forms. Table 2-4Table 2-4Table 2-4 on the next page lists the Envelope, Indoor Lighting, Outdoor Lighting, Mechanical, and Covered Processes Certificate of Acceptance documentsfForms and provides references to the applicable sections of the Standards and in Reference Nonresidential Appendix NA7. The Certificate(s) of Acceptance forms documents submitted to the enforcement agency to demonstrate compliance shall conform to a format and informational order and content approved by the Energy Commission (see §10-103(a)1A for more details). Samples of the Energy Commission-approved documentsforms are located in Appendix A of this manual.

Table 2-4 – Certificate of Acceptance ~~Forms~~Documents

Component	Document~~Form~~ Name	Standards Reference	Reference Nonresidential Appendix
Envelope	NRCA-ENV-02-F – Fenestration Acceptance	§10-111 & §110.6	NA7.4
Mechanical	NRCA-MCH-02-A – Outdoor Air	§10-103(b)4 & §120.1(b)2 & §120.5(a)1	NA7.5.1.1 NA7.5.1.2
	NRCA-MCH-03-A – Constant Volume Single Zone HVAC	§120.1(b)2 & §120.5(a)2	NA7.5.2
	NRCA-MCH-04-A – Air Distribution Duct Leakage Testing	§120.5(a)3 & §140.4(l)	NA7.5.3 NA2.1
	NRCA-MCH-05-A – Air Economizer Controls	§120.5(a)4 & §140.4(e)	NA7.5.4
	NRCA-MCH-06-A – Demand Control Ventilation (DVC)	§120.1(c)3 & §120.5(a)5	NA7.5.5
	NRCA-MCH-07-A – Supply Fan Variable Flow Controls (VFC)	§120.5(a)6 & §140.4(c)	NA7.5.6
	NRCA-MCH-08-A – Valve Leakage Test	§120.5(a)7 & §140.4(k)6	NA7.5.7
	NRCA-MCH-09-A – Supply Water Temperature Reset Controls	§120.5(a)9 & §144(k)4	NA7.5.8
	NRCA-MCH-10-A – Hydronic System Variable Flow Controls	§120.5(a)7 & §144(k)1	NA7.5.9
	NRCA-MCH-11-A – Automatic Demand Shed Controls	§120.2(h) & §120.5(a)10	NA7.5.10
	NRCA-MCH-12-A – Fault Detection and Diagnostics for DX Units	§120.5(a)11	NA7.5.11
	NRCA-MCH-13-A – Automatic Fault Detection and Diagnostics for Air Handling and Zone Terminal Units	§120.5(a)12	NA7.5.12
	NRCA-MCH-14-A – Distributed Energy Storage DX AC Systems Test	§120.5(a)13	NA7.5.13
	NRCA-MCH-15-A – Thermal Energy Storage (TES) Systems	§120.5(a)14	NA7.5.14
	NRCA-MCH-16-A – Supply Air Temperature Reset Controls	§120.5(a)15	NA7.5.15
	NRCA-MCH-17-A – Condenser Water Temperature Reset Controls	§120.5(a)16	NA7.5.16
	NRCA-MCH-18-A – Energy Management Control System	§120.5(a)17	-----
Indoor Lighting	NRCA-LTI-02-A – Lighting Controls	§110.9(b) & §130.1(c) & §130.4(a)	NA7.6.2
	NRCA-LTI-03-A – Automatic Daylighting	§110.9(b) & §130.1(d) & §130.4(a)	NA7.6.1
	NRCA-LTI-04-A – Demand Responsive Controls	§130.1(e) & §130.4(a)	NA7.6.3
Outdoor Lighting	NRCA-LTO-02-A – Outdoor Motion Sensor and Lighting Shut-off Controls Acceptance	§110.9(b) & §130.2(c) & §130.4(a)	NA7.8
Covered	NRCA-PRC-01-A – Compressed Air Systems	§120.6(e)	NA7.13

Processes	NRCA-PRC-02-A – Parking Garage Exhaust~~Commercial Kitchen Exhaust System Acceptance~~	§120.6(c) & §120.6(c)8~~§140.9(b)~~	NA7.11~~1~~2
	NRCA-PRC-03-F – ~~Parking Garage Exhaust~~Commercial Kitchen Exhaust System Acceptance	§140.9(b)~~§120.6(c) & §120.6(c)8~~	NA7.11~~1~~2
	NRCA-PRC-04-A – Refrigerated Warehouse Evaporator Fan Motor Controls	§120.6(a)3 & §120.6(a)7B	NA7.10.2
	NRCA-PRC-05-A – Refrigerated Warehouse Evaporative Condenser Controls	§120.6(a)4 & §120.6(a)7C	NA7.10.3.1
	NRCA-PRC-06-A – Refrigerated Warehouse Air-Cooled Condenser Controls	§120.6(a)4 & §120.6(a)7D	NA7.10.3.2
	NRCA-PRC-07-A – Refrigerated Warehouse Variable Speed Compressor	§120.6(a)5 & §120.6(a)7E	NA7.10.4
	NRCA-PRC-08-A – Refrigerated Warehouse Electric Resistance Underslab Heating System	§120.6(a) & §120.6(a)7A	NA7.10.1
	NRCA-PRC-12-F – Elevator Lighting & Ventilation Controls	§120.6(f)	NA7.14
	NRCA-PRC-13-F – Escalators & Moving Walkways Speed Control	§120.6(g)	NA7.15
Refer to Appendix A of this manual for a complete list ~~and samples~~ of Certificate of Acceptance documents ~~forms~~.			

2.2.8 HERS Verification – Certificate of Field Verification and Diagnostic Testing

When single-zone, constant volume space-conditioning systems (1) serving less than 5,000 ft² of floor area and (2) have more than 25 percent of the system surface duct area located in unconditioned space, duct sealing is prescriptively required by §140.4(l) for newly constructed buildings and by §141.0(b)2C, D, and E for HVAC alterations. A third-party inspection and diagnostic test of the duct system must be conducted by a certified HERS rater to verify that the system's air distribution duct leakage is within specifications required by the Standards.

2.2.9 HERS Providers

http://www.cheers.org

http://www.calcerts.com

http://www.cbpca-hers.org

The Energy Commission approves Home Energy Rating System (HERS) providers, subject to the Energy Commission's HERS Regulations (Title 20, Chapter 4, Article 8, Sections 1670 through 1675). Approved HERS providers are authorized to train and certify HERS raters and are required to maintain quality control over HERS rater field verification and diagnostic testing activities. In California, the certified HERS providers are:

1. ConSol Home Energy Efficiency Rating Services (CHEERS);
2. California Certified Energy Rating & Testing Services (CalCERTS); and,
3. U.S. Energy Raters Association (USERA) who was formerly CBPCA.

The HERS provider must maintain a HERS provider data registry and database that incorporates an internet website-based user interface that has ~~sufficient~~ functionality to accommodate the needs of the authorized users of the data registry who must participate in the administration of HERS compliance, document registration, and Building Energy Efficiency Standards enforcement activities.

The HERS provider data registry must receive and record information ~~input sufficient~~ to identify and track measures that require HERS verification in a specific building/system, and must have the capability to determine compliance based on the information from the results of applicable testing or verification procedures reported as input to the registry for the building/system. When the requirements for compliance are met, the HERS provider's data registry must make a unique "registered" Certificate of Field Verification and Diagnostic Testing available to enforcement agencies, builders, building owners, HERS raters, and other interested parties ~~a unique "registered" Certificate of Field Verification and Diagnostic Testing~~ to show compliance with the document submittal requirements of §~~Section~~ 10-103 ~~of the 2013 Building Energy Efficiency Standards~~. The HERS provider data registry must have the capability to facilitate electronic submittal of the registered Certificate(s) of Field Verification and Diagnostic Testing of ~~to~~ an Energy Commission document repository for retention of the certificates for use in enforcement of the regulations.

The HERS provider must make available (via phone or internet communications) ~~interface~~ a way for building officials, builders, HERS raters, and other authorized users of the HERS provider data registry to verify the information displayed on copies of the submitted Certificate of Field Verification and Diagnostic Testing documentation. Refer to Reference Nonresidential Appendix NA1 and Reference Joint Appendix JA7 for additional information describing the HERS provider's role and responsibilities.

~~For the 2013 Building Energy Efficiency Standards, a~~An approved HERS provider may also be approved as a Registration Provider and facilitate the documentation registration process for nonresidential buildings and projects. Beginning January 1, 2015, contingent upon approval of a nonresidential data registry by the Energy Commission, all nonresidential compliance documents~~forms~~ will need to be registered. This requirement will apply to all Certificate(s) of Compliance, Certificate(s) of Installation, and Certificate(s) of Acceptance. The Registration Provider responsible for registering nonresidential compliance ~~forms~~ documents does not have to be an approved HERS provider and can be managed by any entity or organization meeting the nonresidential data registry requirements. However, an approved HERS provider may also manage a nonresidential data registry as an approved Registration Provider and register both residential and nonresidential compliance documentation.

2.2.10 HERS Raters

The HERS rater is certified by an Energy Commission-approved HERS provider to perform the field verification and diagnostic testing that may be required to demonstrate and document compliance with the Standards. HERS raters receive special training in diagnostic techniques and building science as part of the HERS rater certification process administered by the HERS provider. Thus, HERS raters are to be considered special inspectors by enforcement agencies and shall demonstrate competence, to the satisfaction of the enforcement agency, to conduct the required visual inspections and diagnostic testing of the regulated energy efficiency features installed in the dwelling. HERS raters should be aware that some enforcement agencies charge a fee for special inspectors to operate within their jurisdictions. ~~,~~ Since ~~and because~~ HERS raters are deemed to be

special inspectors for the enforcement agency, a HERS rater may be prohibited from performing HERS verifications within a jurisdiction if the enforcement agency determines that a HERS rater willingly or negligently does not comply with the Building Energy Efficiency Standards or the HERS Regulations' requirements.

If the documentation author who produced the Certificate of Compliance documentation for the building is not an employee of the builder or subcontractor, the documentation author for the building may also act to perform the responsibilities of a HERS rater, provided the documentation author has met the requirements and has been certified as a HERS rater by one of the Energy Commission-approved HERS providers.

The HERS rater is responsible for:

- conducting the field verification and diagnostic testing of the air distribution ducts
- ~~and for~~ transmitting all required data describing the results to a HERS provider data registry~~. The HERS rater must~~
- confirming that the air distribution ducts conform to the design detailed on the building plans and specifications and the mechanical Certificate(s) of Compliance (NRCC-MCH-01-E) approved by the enforcement agency for the building.
- ~~The HERS Rater is also responsible for~~ verifying that the information on the Certificate(s) of Installation and Certificate(s) of Acceptance is consistent with the Certificate(s) of Compliance~~.~~

The test results reported on the Certificate of Acceptance (NRCA-MCH-04-A) by the certified technician (see Chapter 12 of this manual) for the air distribution ducts must be consistent with the test results determined by the HERS rater's diagnostic verification and meet the criteria for compliance with the Standards. HERS testing shall be conducted in accordance with the HERS procedures in Nonresidential Reference Appendix NA2.

Results from the HERS rater's field verification and diagnostic testing must be reported to the HERS provider Data registry, including failures. If the results indicate compliance, the HERS provider data registry will make available a registered copy of the Certificate of ~~of~~ Field Verification and Diagnostic Testing. A ~~A registered~~ copy ~~of the Certificate of Field Verification and Diagnostic Testing~~ must be posted at the building site for review by the enforcement agency, ~~and~~ made available for all applicable inspections~~.~~, and ~~A copy of the Certificate of Field Verification and Diagnostic Testing must be~~ included with the documentation that the builder provides to the building owner at occupancy as specified in §10-103(b).

A listing of Certificate of Field Verification and Diagnostic Testing ~~forms~~ documents is available in Table 2-5~~Table 2-5~~~~Table 2-5~~ on the next page. The Certificate of Field Verification and Diagnostic Testing documents~~forms~~ submitted to the enforcement agency to demonstrate compliance shall conform to a format and informational order and content approved by the Energy Commission (see §10-103(a)1A for more details). Samples of the Energy Commission-approved documents~~forms~~ are located in Appendix A of this manual

Table 2-5 – Certificate of Verification ~~Forms~~Documents

Component	~~Documents~~~~Form~~ Name	Standards Reference	Reference Nonresidential Appendix
Mechanical	NRCV-MCH-04-H Air Distribution System Leakage Diagnostic	§10-103(a)5; §140.4(l); §141.0(b)2C, D, and E	NA1; NA2
Plumbing	NRCV-PLB-21-H High Rise Multifamily Central Hot Water System Distribution	§140.5; §150.1(c)8	RA3.6;RA4.4
	NRCV-PLB-22-H High Rise Single Dwelling Unit Hot Water System Distribution	§140.5; §150.1(c)8	RA3.6;RA4.4

2.2.11 Verification, Testing and Sampling

At the builder's option, HERS field verification and diagnostic testing shall be completed either for each constant volume, single zone, space conditioning unit in the building or for a sample from a designated group of units. Field verification and diagnostic testing for compliance credit for duct sealing shall use the diagnostic duct leakage from the fan pressurization of ducts procedure in Reference Nonresidential Appendix NA2. If the builder chooses the sampling option, the applicable procedures described in NA1.6.1, NA1.6.2 and NA1.6.3 shall be followed.

The builder or subcontractor shall provide ~~to the HERS rater~~ a copy of the Certificate(s) of Compliance ~~approved/~~signed by the principal designer/owner and a ~~-~~copy of the Certificate(s) of Installation to the HERS rater as required in NA1.4. Prior to completing field verification and diagnostic testing, the HERS rater shall confirm that the Certificate(s) of Installation and Certificate(s) of Acceptance has been completed as required~~,~~ and ~~and that the information on those forms~~ shows compliance consistent with the Certificate(s) of Compliance.

If field verification and diagnostic testing determines that the requirements for compliance are met, the HERS rater shall transmit the test results to the HERS provider data registry, whereupon the provider ~~shall~~ makes ~~available~~ a copy of the registered Certificate of Field Verification and Diagnostic Testing ~~to~~ for the HERS rater, the builder, the enforcement agency, and other authorized users of the ~~HERS provider~~ data registry. Printed copies, electronic or scanned copies, and photocopies of the completed, signed, and registered Certificate of Field Verification and Diagnostic Testing shall be allowed for document submittals, subject to verification that the information contained on the copy conforms to the registered document information currently on file in the provider data registry for the space conditioning unit.

The HERS rater shall provide copies of the registered Certificate of Field Verification and Diagnostic Testing to the builder, and post a ~~completed signed registered~~ copy of the Certificate of Verification at the building site for review by the enforcement agency in conjunction with requests for final inspection.

The HERS provider shall make available (via phone or internet communications) ~~interface~~ a way for enforcement agencies, builders, and HERS raters to verify that the information displayed on copies of the submitted Certificate of Field Verification and Diagnostic Testing documents~~form~~ conform~~s~~ to the registered document information currently on file in the provider data registry for the registered Certificate of Field Verification and Diagnostic Testing.

2.2.12 Initial Model Field Verification and Diagnostic Testing

The HERS rater shall diagnostically test and field verify the first constant, single zone, space conditioning unit of each building. This initial testing allows the builder to identify and correct any potential duct installation and sealing flaws or practices before other units are installed. If field verification and diagnostic testing determines that the requirements for compliance are met, the HERS rater shall transmit the test results to the HERS provider registry, whereupon the provider shall make available a copy of the registered Certificate of Field Verification and Diagnostic Testing to the HERS rater, the builder, and the enforcement agency.

2.2.13 Re-sampling, Full Testing and Corrective Action

"Re-sampling" refers to the procedure that requires testing of additional units within a sample group when the selected sample unit within a group fails to comply with the HERS verification requirements. When a failure is encountered during sample testing, the failure shall be entered into the provider's data registry. Corrective action shall be taken and the unit shall be retested to verify that corrective action was successful. Corrective action and retesting on the unit shall be repeated until the testing indicates compliance and the results have been entered into the HERS provider data registry. Whereupon, a registered Certificate of Field Verification and Diagnostic Testing for the unit shall be made available to the HERS rater, the builder, the enforcement agency, and other authorized users of the HERS provider data registry.

In addition, the HERS rater shall conduct re-sampling to assess whether the first failure in the group is unique or if the rest of the units in the group are likely to have similar failings. The HERS rater shall randomly select for re-sampling one of the remaining untested units in the group for testing of the feature that failed. If testing in the re-sample confirms that the requirements for compliance credit are met, then the unit with the failure shall not be considered an indication of failure in the other units in the group. The HERS rater shall transmit the re-sample test results to the HERS provider data registry ~~, whereupon the provider shall make available to the HERS rater, the builder, the enforcement agency, and other authorized users of the HERS provider data registry, a copy of the registered Certificate of Field Verification and Diagnostic Testing~~ for each of the remaining units in the group including the dwelling unit that was re-sampled.

If field verification and diagnostic testing in the re-sample results in a second failure, the HERS rater shall enter the second failure into the HERS provider data registry, and report ~~the second failure~~it to the builder and the enforcement agency. All dwelling units in the group must thereafter be individually field verified and diagnostically tested. The builder shall take corrective action in all space conditioning units in the group that have not been tested. In cases where corrective action would require destruction of building components, the builder may choose to reanalyze compliance and choose different measures that will achieve compliance. In this case, a new Certificate(s) of Compliance shall be registered to the HERS provider data registry and a copy shall be submitted to the enforcement agency and ~~provided to the~~ HERS rater. The HERS rater shall conduct field verification and diagnostic testing for each of these space conditioning units to verify that problems have been corrected and that the requirements for compliance have been met. Upon verification of compliance, the HERS rater shall enter the test results into the HERS provider data registry. Whereupon~~,~~, a copy of the Certificate of Field Verification and Diagnostic Testing for each individual unit in the group is ~~provider shall ma~~dke available to the HERS rater, the builder, the enforcement agency, and other authorized users of the HERS provider

data registry. ~~a copy of the registered Certificate of Field Verification and Diagnostic Testing for each individual unit in the group.~~

The HERS provider shall file a report with the enforcement agency explaining all action taken (including field verification, diagnostic testing, and corrective action~~,~~) to bring into compliance units for which full testing has been required. If corrective action requires work not specifically exempted by the California Mechanical Code (CMC) or the California Building Code (CBC), the builder shall obtain a permit from the enforcement agency prior to commencement of any of the work.

2.2.14 Third Party Quality Control Program (TPQCP)

The Energy Commission may approve Third Party Quality Control Programs (TPQCP) that serve some of the functions of HERS raters for field verification purposes, but do not have the authority to sign compliance documentation as a HERS rater. Third Party Quality Control Programs:

A. Provide training to installers, participating program installing contractors, installing technicians and specialty TPQCP~~hird Party Quality Control Program~~ subcontractors regarding compliance requirements for measures for which diagnostic testing and field verification is required.

B. Collect data from participating installers for each installation completed for compliance credit.

C. Perform data checking analysis of information from diagnostic testing performed on participating TPQCP contractor installation work to evaluate the validity and accuracy of the data and to independently determine whether compliance has been achieved.

D. Provide direction to the installer to retest and correct problems when data checking determines that compliance has not been achieved.

E. Require resubmission of data when retesting and correction is directed.

F. Maintain a database of all data submitted by the participating TPQCP contractor in a format that is acceptable and made available to the Energy Commission upon request.

The HERS provider must arrange for the services of an independent HERS rater to conduct field verification and diagnostic testing of the installation work performed by the participating TPQCP contractor ~~under the Third Party Quality Control Program~~. If group sampling is utilized for HERS verification compliance for jobs completed by a participating TPQCP contractor, the sample from the group that is tested for compliance by the HERS rater may be selected from a group composed of up to 30 units for which the ~~same participating~~ TPQCP contractor has performed the installation work. For alterations, the installation work performed by TPQCP contractors may be approved at the enforcement agency's discretion, based upon a properly completed Certificate(s) of Installation (NRCI-MCH-01) ~~-~~and Certificate(s) of Acceptance (NRCA-MCH-04-A). ~~If on the condition that~~ if subsequent HERS compliance verification procedures determine that re-sampling, full testing or corrective action is necessary for such conditionally-approved dwellings in the group, and then the corrective work must be completed. If the Standards require registration of the compliance documents~~forms~~, the Certificate(s) of Installation and Certificate(s) of Acceptance must be a registered cop~~y~~ies from a nonresidential data registry and a HERS provider data registry, respectively.

Refer to Reference Nonresidential Appendix NA1 for additional information about the Third Party Quality Control Program and for additional information about document registration.

2.2.15 For More Information

More details on field verification and diagnostic testing and the HERS provider data registry are provided in the ~~*2013*~~ *2016 Reference Nonresidential Appendices* and ~~*2013*~~ *2016 Reference Joint Appendices*, as described below:

A. Reference Nonresidential Appendix NA1 – Nonresidential HERS Verification, Testing, and Documentation Procedures
B. Reference Nonresidential Appendix NA2 – Nonresidential Field Verification and Diagnostic Test Procedures
C. Reference Joint Appendix JA7 – Data Registry Requirements

2.3 Final Inspection by the Enforcement Agency and Issuance of the Certificate of Occupancy

§10-103(d)2

Local enforcement agencies or their representatives must inspect all new buildings and systems to ensure conformance with applicable codes and standards. The inspector may require that corrective action be taken to bring the construction/installation into compliance. Thus, the total number of inspection visits and the timing of the inspections that may be required before passing the final inspection may depend on the size and complexity of the building or system.

Enforcement agencies are required to withhold issuance of a final Certificate of Occupancy until all compliance documentation is submitted, certifying that the specified systems and equipment conform to the requirements of the Standards. When *registration* is required, all Certificate(s) of Installation and Certificate(s) of Acceptance must be registered copies from an approved nonresidential data registry. All Certificate(s) of Field Verification and Diagnostic Testing must be registered copies from an approved HERS provider data registry.

2.3.1 Occupancy Permit

The final step in the compliance and enforcement process is when an Occupancy Permit is issued by the enforcement agency. This is the green light for the building to be occupied. Although a developer may lease space prior to the issuance of the occupancy permit, the tenant cannot physically occupy the space until the enforcement agency issues the occupancy permit. The building is not legally habitable until the Occupancy Permit is issued.

2.3.2 Occupancy – Compliance, Operating, and Maintenance Information

§10-103(b)

At the occupancy phase, the general contractor and/or design team is required to provide the owner with copies of the energy compliance documents, including: Certificate(s) of

Compliance; Certificate(s) of Installation; Certificate(s) of Acceptance, and Certificate(s) of Field Verification and Diagnostic Testing. Documents for the construction/installation, operating, maintenance, ~~and~~ ventilation information, and ~~all documentation that provides~~ instruction for operating and maintaining the features of the building efficiently shall also be included.

2.3.3 Compliance Documentation

Compliance documentation includes the documents~~forms~~, reports and other information that are submitted to the enforcement agency with an application for a building permit (Certificate of Compliance). Compliance documentation also includes documentation completed by the installing contractor, engineer/architect of record, ~~or~~ owner's agent, ~~and~~ or certified technician to verify that certain systems and equipment have been correctly installed and commissioned (Certificate(s) of Installation and Certificate(s) of Acceptance). Compliance documentation will also include reports and test/inspection results by third-party HERS raters (Certificate(s) of Field Verification and Diagnostic Testing) when duct sealing/leakage testing is required.

Each portion of the applicable compliance documentation must be completed and/or submitted at:

A. The building permit phase (Certificate of Compliance)
B. The construction phase (Certificate(s) of Installation)
C. The testing and verification phase (Certificate of Field Verification and Diagnostic Testing)
D. The final inspection phase (Certificate(s) of Acceptance)

All submitted compliance documentation is required to be compiled by the builder or general contractor. A copy of the compliance documentation is required to be provided to the building owner so that the end user has information describing the energy features that are installed in the building.

2.4 Construction Documents

Construction documentation consists of the building plans and specifications for construction of the building or installation of the system, and also includes the energy calculations and the energy compliance (Certificate(s) of Compliance) ~~forms~~ documents necessary to demonstrate that the building complies with the Standards ~~requirements~~. The plans and specifications, referred to as the construction documents (or CDs), define the scope of work to be performed by the general contractor and the subcontractors.

2.4.1 Signing Responsibilities

The Certificate(s) of Compliance must be signed by the documentation author and the person responsible for the preparation of the building plans and specifications ~~for the building and the documentation author~~. The principal designer is also responsible for the energy compliance documentation, even if the actual work of filling out the documents~~forms~~ for the energy compliance documentation is delegated to someone else

(the Documentation Author). See ~~section~~ Section 2.5 for more details regarding the roles and responsibilities of the designers and documentation author.

The Certificate(s) of Compliance is utilized by the building permit applicant, the enforcement agency plans examiner, and the field inspector. This way, the permit application can call the plans examiner's attention to the relevant drawings sheets and other information and the plans examiner can call the field inspector's attention to items that may require special attention in the field. The compliance ~~forms~~ documents and worksheets encourage communication and coordination within each discipline. The Certificate(s) of Compliance documentation approved by the enforcement agency is required to be consistent with the building plans and specifications approved by the enforcement agency.

The Business and Professions Code specifies the requirements for professional responsibility for design and construction of buildings. Energy code compliance documentation certification ~~statements~~ require that a person who signs a compliance document shall be a licensed professional who is eligible under Division 3 of the Business and Professions Code to accept responsibility for the applicable design or construction information contained on the submitted compliance document~~form~~. The Certificate(s) of Compliance must be signed by an individual eligible to accept responsibility for the design. Certificate(s) of Installation and Certificate(s) of Acceptance (Envelope) must be signed by the individual eligible to take responsibility for construction, or their authorized representative. Indoor Lighting, Outdoor Lighting, and Mechanical, Certificate(s) of Acceptance must be signed by a certified technician (see Chapter 13).

Applicable sections from the Business and Professions Code (based on the edition in effect as of January 2011), are provided as follows:

2.4.1.1 ***~~A.~~ 5537 Structure exemption:***

(a) This chapter does not prohibit any person from preparing plans, drawings, or specifications for any of the following:

(1) Single-family dwellings of wood framed construction not more than two stories and basement in height.

(2) Multiple dwellings containing no more than four dwelling units of wood frame construction not more than two stories and basement in height. However, this paragraph shall not be construed as allowing an unlicensed person to design multiple clusters of up to four dwelling units each to document~~form~~ apartment or condominium complexes where the total exceeds four units on any lawfully divided lot.

(3) Garages or other structures appurtenant to buildings described under subdivision (a), of wood framed construction not more than two stories and basement in height.

(4) Agricultural and ranch buildings of wood framed construction, unless the building official having jurisdiction deems that an undue risk to the public health, safety, or welfare is involved.

(b) If any portion of any structure exempted by this section deviates from substantial compliance with conventional framing requirements for wood framed construction found in the most recent edition of Title 24 of the California Code of Regulations or tables of limitation for wood framed construction, as defined by the applicable building code duly adopted by the local jurisdiction or the state, the building official having jurisdiction shall require the preparation of plans, drawings, specifications, or calculations for that portion by, or under the responsible control of, a licensed architect or registered engineer. The documents for that portion shall bear the stamp and signature of the licensee who is

responsible for their preparation. Substantial compliance for purposes of this section is not intended to restrict the ability of the building officials to approve plans pursuant to existing law and is only intended to clarify the intent of Chapter 405 of the Statutes of 1985.

5537.2. This chapter shall not be construed as authorizing a licensed contractor to perform design services beyond those described in Section 5537 or in Chapter 9 (commencing with Section 7000), unless those services are performed by or under the direct supervision of a person licensed to practice architecture under this chapter, or a professional or civil engineer licensed pursuant to Chapter 7 (commencing with Section 6700) of Division 3, insofar as the professional or civil engineer practices the profession for which he or she is registered under that chapter.

However, this section does not prohibit a licensed contractor from performing any of the services permitted by Chapter 9 (commencing with Section 7000) of Division 3 within the classification for which the license is issued. Those services may include the preparation of shop and field drawings for work which he or she has contracted or offered to perform, and designing systems and facilities which are necessary to the completion of contracting services which he or she has contracted or offered to perform.

However, a licensed contractor may not use the title "architect," unless he or she holds a license as required in this chapter.

5538. This chapter does not prohibit any person from furnishing either alone or with contractors, if required by Chapter 9 (commencing with Section 7000) of Division 3, labor and materials, with or without plans, drawings, specifications, instruments of service, or other data covering such labor and materials to be used for any of the following:

(a) For nonstructural or nonseismic storefronts, interior alterations or additions, fixtures, cabinetwork, furniture, or other appliances or equipment.

(b) For any nonstructural or nonseismic work necessary to provide for their installation.

(c) For any nonstructural or nonseismic alterations or additions to any building necessary to or attendant upon the installation of those storefronts, interior alterations or additions, fixtures, cabinetwork, furniture, appliances, or equipment, provided those alterations do not change or affect the structural system or safety of the building.

2.4.1.2 ***~~B.~~ 6737.1. Structure exemption***

(a) This chapter does not prohibit any person from preparing plans, drawings, or specifications for any of the following:

(1) Single-family dwellings of wood framed construction not more than two stories and basement in height.

(2) Multiple dwellings containing no more than four dwelling units of wood framed construction not more than two stories and basement in height. However, this paragraph shall not be construed as allowing an unlicensed person to design multiple clusters of up to four dwelling units each to form apartment or condominium complexes where the total exceeds four units on any lawfully divided lot.

(3) Garages or other structures appurtenant to buildings described under subdivision (a), of wood framed construction not more than two stories and basement in height.

(4) Agricultural and ranch buildings of wood framed construction, unless the building official having jurisdiction deems that an undue risk to the public health, safety or welfare is involved.

(b) If any portion of any structure exempted by this section deviates from substantial compliance with conventional framing requirements for wood framed construction found in the most recent edition of Title 24 of the California Code of Regulations or tables of limitation for wood framed construction, as defined by the applicable building code duly adopted by the local jurisdiction or the state, the building official having jurisdiction shall require the preparation of plans, drawings, specifications, or calculations for that portion by, or under the responsible charge of, a licensed engineer, or by, or under the responsible control of, an architect licensed pursuant to Chapter 3 (commencing with Section 5500). The documents for that portion shall bear the stamp and signature of the licensee who is responsible for their preparation.

2.4.1.3 ***~~C.~~ 6737.3. Exemption of contractors***

A contractor, licensed under Chapter 9 (commencing with Section 7000) of Division 3, is exempt from the provisions of this chapter relating to the practice of electrical or mechanical engineering so long as the services he or she holds himself or herself out as able to perform or does perform, which services are subject to the provisions of this chapter, are performed by, or under the responsible charge of a registered electrical or mechanical engineer insofar as the electrical or mechanical engineer practices the branch of engineering for which he or she is registered.

This section shall not prohibit a licensed contractor, while engaged in the business of contracting for the installation of electrical or mechanical systems or facilities, from designing those systems or facilities in accordance with applicable construction codes and standards for work to be performed and supervised by that contractor within the classification for which his or her license is issued, or from preparing electrical or mechanical shop or field drawings for work which he or she has contracted to perform. Nothing in this section is intended to imply that a licensed contractor may design work which is to be installed by another person.

2.5 Roles and Responsibilities

Effective compliance and enforcement requires coordination and communication between the architects, engineers, lighting and HVAC designers, permit applicant, contractors, plans examiner and the field inspector.[1] This manual recommends procedures to improve communication and, therefore, compliance with the Standards.

The building design and construction industry, as well as enforcement agencies are organized around engineering disciplines:~~.~~[2]

- The design of the building's electrical and lighting system is typically the responsibility of the **lighting designer, electrical engineer or electrical contractor**. This person is responsible for designing a system that meets the Standards, producing the building plans and specifications, and for completing the compliance documents~~forms~~ and worksheets.
- In larger enforcement agencies, an **electrical plans examiner** is responsible for reviewing the electrical plans, specifications and compliance documents and an

[1] For small projects, an architect or engineer may not be involved and the contractor may be the permit applicant.

[2] Small enforcement agencies may not have this type of specialization.

electrical field inspector is responsible for verifying the correct installation of the systems in the field.

- ~~This same division of responsibility is typical for the mechanical systems: t~~The **mechanical plans examiner** is responsible for reviewing the mechanical plans;
- The ~~**and the**~~ **mechanical field inspector** is responsible for verifying correct construction in the field.
- For the building envelope, the **architect** is typically responsible for designing the building and completion of the documents~~forms~~,
- ~~t~~The **enforcement agency** is responsible for reviewing the design and documents~~forms.~~ ~~and~~
- ~~t~~The **enforcement agency field inspector** is responsible for verifying the construction in the field.

Unless the whole building performance approach is used, the compliance and enforcement process can be completed separately for each discipline. This enables each discipline to complete its work independently of others. To facilitate this process, compliance ~~forms~~ documents have been grouped by discipline. These groupings include Standards worksheets for calculations and a summary document~~form~~ which includes a checklist.

2.5.1 Designer

5537 and 6737.1 of California Business and Professions Code

The designer is the person responsible for the overall building design. As such, the designer is responsible for specifying the building features that determine compliance with the ~~Building Energy Efficiency~~ Standards and other applicable building codes. The designer is required to provide a signature on the respective Certificate(s) of Compliance (see Table 2-1 of this Chapter) to certify that the building has been designed to comply with the ~~Building Energy Efficiency~~ Standards.

The designer may be an architect, engineer or other California-licensed professional and may personally prepare the Certificate(s) of Compliance documents.~~,~~ ~~or~~ They may delegate preparation of the energy analysis and Certificate(s) of Compliance documents to an energy documentation author or energy consultant. If preparation of the building energy Certificate of Compliance documentation is delegated, the designer must remain in responsible charge of the building design specifications, energy calculations, and all building feature information represented on the Certificate of Compliance. The designer's signature on the Certificate of Compliance affirms his/her responsibility for the information submitted on the Certificate of Compliance. When the designer is a licensed professional, the signature block on the Certificate(s) of Compliance must include the designer's license number.

When Certificate(s) of Compliance document registration is required, the Certificate(s) of Compliance must be submitted to and registered with an approved nonresidential data registry before submittal to the enforcement agency for approval. All submittals to the nonresidential data registry must be made electronically.

2.5.2 Documentation Author

§10-103(a)1

The person responsible for the design of the building may delegate the energy analysis and preparation of the Certificate(s) of Compliance documentation to a building energy

consultant or documentation author. Completed Certificate(s) of Compliance documentation must be submitted to the enforcement agency during the building permit phase. The Certificate(s) of Compliance demonstrates to the enforcement agency plans examiner that the building design complies with the ~~requirements of the Building Energy Efficiency~~ Standards. Moreover,~~,~~ ~~thus~~ the building energy features information submitted on the Certificate(s) of Compliance must be consistent with the ~~the building design features defined in the~~ building plans and specifications. ~~for the building submitted to the enforcement agency.~~

The documentation author is not subject to the same limitations and restrictions of the *Business and Professions Code* as is the building designer because the documentation author is not responsible for specification of the building design features. The documentation author may provide the building designer with recommendations for building energy features ~~and if those recommendations are approved by the building designer, the features~~ that must be incorporated into the building design plans and specification documents submitted to the enforcement agency at plan check. The documentation author's signature on the Certificate(s) of Compliance certifies that the documentation he/she has prepared is accurate and complete, but does not indicate ~~documentation author~~ his/her responsibility for the specification of the features that define the building design. The documentation author provides completed Certificate(s) of Compliance documents to the building designer who must sign the Certificate(s) of Compliance prior to submittal of the Certificate(s) of Compliance to the enforcement agency at plan check. If registration of the Certificate of Compliance is required, the Certificate(s) of Compliance must be submitted to an approved nonresidential data registry prior to submittal to the enforcement agency. When document registration is required, only registered Certificates of Compliance that display the registration number assigned to the certificate by a data registry are acceptable for submittal to the enforcement agency at plan check.

For a list of qualified documentation authors, visit the *California Association of Building Energy Consultants (CABEC)* website at: http://www.cabec.org/

2.5.3 Builder or General Contractor

The term builder refers to the general contractor responsible for construction. During the construction process, the builder or general contractor usually hires specialty subcontractors to provide specific services, such as installing insulation, designing and installing HVAC systems, etc. The builder or general contractor must ensure that the Certificate(s) of Installation are submitted to the enforcement agency by the person(s) responsible for construction/installation of regulated features, materials, components, or manufactured devices. The builder or general contractor may sign the Certificate(s) of Installation (as the responsible person) on behalf of the specialty subcontractors they hire, but generally, Certificate(s) of Installation preparation and signature responsibility resides with the specialty subcontractor who provided the installation services. The Certificate(s) of Installation document identifies the installed features, materials, components, or manufactured devices detailed in the building plans and specifications, and the Certificate(s) of Compliance approved by the local enforcement agency. A copy of the Certificate(s) of Installation is required to be posted at the building site for review by the enforcement agency in conjunction with requests for final inspection.

When the ~~Building Energy Efficiency~~ Standards require *registration* of the compliance documents, the builder or general contractor must ensure the transmittal/submittal of the

required Certificate(s) of Installation information to an approved nonresidential data registry. When registration of the Certificate(s) of Installation is required, the completed and signed copies that are posted at the building site for review by the enforcement agency, in conjunction with requests for final inspection, are required to be registered copies.

At final inspection, the builder or general contractor is required to leave in the building all applicable completed and~~,~~ signed ~~and dated~~ compliance documents for the building owner at occupancy. Such information must, at a minimum, include information indicated on the following ~~forms~~documents: Certificate(s) of Compliance; Certificate(s) of Installation; Certificate(s) of Acceptance; and Certificates of Field Verification and Diagnostic Testing. These documents~~forms~~ may be in paper or electronic format and must conform to the applicable requirements of §10-103(a).

2.5.4 Specialty Subcontractors

Specialty subcontractors provide the builder with services from specific building construction trades for installation of features such as wall and ceiling insulation, windows, HVAC systems and/or duct systems, water heating and plumbing systems, and these subcontractors may perform other trade-specific specialty services during the building construction process. The builder has ultimate responsibility for all aspects of the building's construction and has the authority to complete and sign/certify all sections of the required Certificate(s) of Installation documents~~forms.~~; H~~h~~owever, the licensed specialty subcontractor should be expected to complete and sign/certify all applicable Certificate(s) of Installation that document the completion of the installation work they have performed for the builder. The subcontractor's responsibility for Certificate(s) of Installation documentation should include providing a signed and registered copy of all applicable Certificate of Installation documents~~forms~~ to the builder, and posting a signed and registered copy of all applicable Certificate of Installation ~~forms~~ documents at the building site for review by the enforcement agency.

When the Standards require document registration, all copies of the Certificate(s) of Installation submitted to the builder and to the enforcement agency are required to be registered copies from an approved nonresidential data registry and prepared in accordance with the procedures described in Reference Joint Appendix JA7.

2.5.5 Enforcement Agency

§10-103

The enforcement agency is the local agency with responsibility and authority to issue building permits and verify compliance with applicable codes and standards. The enforcement agency performs several key roles in the compliance and enforcement process.

A. Plan check: The enforcement agency performs plan review of the Certificate(s) of Compliance documentation and ~~of~~ the plans and specifications that define the building design~~ submitted to the enforcement agency at the building permit phase~~. During plan review, the Certificate(s) of Compliance documentation is compared to the plans and specifications for the building design in order to confirm that the building ~~features that~~

~~describe the building~~ are specified consistently in all of the submitted documents. If the ~~specification for building design features shown on the Certificate(s) of Compliance does~~specifications for the building design features shown on the Certificate(s) of Compliance do not conform to the specifications shown on the designer's submitted plans and specifications for the building, revision of the submitted documents must be performed to make the design specification consistent in all documents. Thus, if the features on the Certificate(s) of Compliance are consistent with the features given in the plans and specifications for the building design and ~~Certificate(s) of Compliance~~ indicates that the building complies, ~~and the features on the Certificate(s) of Compliance are consistent with the features given in the plans and specifications for the building design,~~ then ~~the plan review process can confirm that the building design complies with the building energy code. If it is determined that the building design is in compliance with the building energy code,~~ the enforcement agency may issue a building permit.

~~**A.**~~ When the Standards require document *registration*, the Certificate(s) of Compliance documentation that is submitted to plan review must be a registered document from an approved nonresidential data registry.

B. Construction inspection: During the construction of the building, the enforcement agency should make several visits to the construction site to verify that the building is being constructed in accordance with the approved plans and specifications, and energy compliance documentation. As part of this process, at each site visit, the enforcement agency should review any applicable Certificate(s) of Installation that have been posted or made available with the building permit(s). The enforcement agency should confirm that:

- the energy efficiency features installed in the building are consistent with the requirements given in the plans and specifications for the building approved during plan review;
- ~~that~~ the installed features are described accurately on the Certificate(s) of Installation;
- ~~and that~~ all applicable sections of the Certificate(s) of Installation have been signed by the responsible licensed person(s).

The enforcement agency shall not approve a building until they ~~enforcement agency has~~ve received all applicable Certificate(s) of Installation.

~~**B.**~~ When the Standards require *registration* of the energy compliance documents, the Certificate(s) of Installation must be registered with an approved nonresidential data registry.

C. Final approval: The enforcement agency may approve the building at the final inspection phase of the process if the enforcement agency field inspector determines that the building conforms to the requirements of the building's plans and specifications, the ~~and~~ Certificate(s) of Compliance documents are approved by the enforcement agency at plan review, and it meets the requirements of all other applicable codes and standards. For buildings that have used an energy efficiency compliance feature that requires Certificate(s) of Installation documentation, the enforcement agency shall not approve the building until they ~~enforcement agency has~~ve received a Certificate(s) of Installation that meets the requirements of §10-103(a) ~~that~~ and has been completed and signed by the builder or subcontractor. The builder must ultimately take responsibility to ensure that all ~~such~~ required energy compliance documentation has been completed properly and posted at the job site or

submitted to the enforcement agency in conjunction with any of the enforcement agency's required inspections. However, the enforcement agency, in accordance with §10-103(d), as a prerequisite to the approval of the building, must examine all required copies of Certificate(s) of Installation, ~~documentation and~~ Certificate(s) of Acceptance, and Certificate(s) of Field Verification and Diagnostic Testing documentation made available with the building permits for the required inspections. They must ~~, to c~~confirm that ~~they~~ these documents have been properly prepared and are consistent with the plans and specifications and the Certificate(s) of Compliance documentation approved by the enforcement agency for the building at plan review.

D. Corroboration of information provided for the owner/occupant: At final inspection, the enforcement agency shall require the builder to leave ~~in the building (for the building owner at occupancy)~~ energy compliance, operating, maintenance, and ventilation information documentation in the building (for the building owner at occupancy) as specified by §10-103(b).

Compliance documents for the building shall, at a minimum, include information indicated on:

- Certificate(s) of Compliance;
- Certificate(s) of Installation;
- Certificate of Acceptance; and
- Certificate(s) of Field Verification and Diagnostic Testing.

These documents~~forms~~ shall be copies of the documentation submitted to or approved by the enforcement agency, and the copies must conform to the applicable requirements of §10-103(a).

Operating information shall include instructions on how to operate or maintain the buildings energy features, materials, components, and mechanical devices correctly and efficiently. Such information shall be contained in a folder or manual which provides all information specified in §10-103(b). This operating information shall be in paper or electronic format. For dwelling units, buildings or tenant spaces that are not individually owned and operated, or are centrally operated, ~~such~~ this information shall be provided to the person(s) responsible for operating the feature, material, component, or mechanical device installed in the building. ~~This operating information shall be in paper or electronic format.~~

Maintenance information shall be provided for all features, materials, components, and manufactured devices that require routine maintenance for efficient operation. Required routine maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying, by title and/or publication number, the operation and maintenance manual for that particular model and type of feature, material, component, or manufactured device. For dwelling units, buildings or tenant spaces that are not individually owned and operated, or are centrally operated, such information shall be provided to the person(s) responsible for maintaining the feature, material, component, or mechanical device installed in the building. This maintenance information shall be in paper or electronic format.

Ventilation information shall include a description of the quantities of outdoor air that the ventilation system(s) are designed to provide to the building's conditioned space, and instructions for proper operation and maintenance of the ventilation system. For buildings or tenant spaces that are not individually owned and operated, or are centrally operated, such information shall be provided to the person(s) responsible for

operating and maintaining the feature, material, component, or mechanical ventilation device installed in the building. This information shall be in paper or electronic format.

2.5.6 Permit Applicant ~~Responsibilities~~

The permit applicant is responsible for:

A. Providing information on the plans and/or specifications to enable the enforcement agency to verify that the building complies with the ~~Building Energy Efficiency~~ Standards. It is important to provide all necessary detailed information on the plans and specifications. The plans are the official record of the permit. The design professional is responsible for certifying that the plans and specifications are consistent with the energy features listed on the Certificate(s) of Compliance, and that the design is in compliance with the Standards.

B. Performing the necessary calculations to show that the building or system meets the ~~Building Energy Efficiency~~ Standards. These calculations may be documented on the drawing or on the worksheets provided in the manual and supported, when necessary, with data from national rating organizations or product and/or equipment manufacturers.

C. Completing the Certificate(s) of Compliance. The Certificate(s) of Compliance is a listing of each of the major requirements of the Standards. The summary ~~form~~ document includes information from the worksheets and references to the plans where the plans examiner can verify that the building or system meets the ~~Building Energy Efficiency~~ Standards.

2.5.7 Plans Examiner ~~Responsibilities~~

The plans examiner is responsible for:

A. Reviewing the plans and supporting material to verify that they contain the necessary information for a plan review.

B. Checking the calculations and data contained on the worksheets.

C. Indicating by checking a box on the summary documents~~forms~~ that the compliance documentation is acceptable.

D. Making notes for the field inspector about which items require special attention.

2.5.8 Field Inspector ~~Responsibilities~~

The field inspector is responsible for:

A. Verifying that the building or system is constructed according to the plans.

B. Checking off appropriate items on the summary ~~form~~ document at each relevant inspection.

C. Verifying that all of the required compliance documentation (Certificate(s) of Installation, Acceptance, and Field Verification and Diagnostic Testing) is completed, dated, signed, and registered (when applicable).

The Certificate(s) of Compliance may be used by the building permit applicant, the plans examiner and the field inspector. This way, the permit application can call the plans examiner's attention to the relevant drawings sheets and other information and the plans examiner can call the field inspector's attention to items that may require special attention in the field. The compliance ~~forms~~ documents and worksheets encourage communications and coordination within each discipline.